

Name YOSHIKAWA Sayaka	Job Title Associate Professor	Area of Expertise Land Use Change, Remote Sensing, Hydrology
1. Main Research Topics ① Assessment of Water Resources due to Climate Change and Land-Use Change on the global scale We are estimating the water requirements from the past to the future on a global scale by organizing data on irrigated farmland areas and the spatio-temporal distribution of reservoirs. We also organize climate scenarios, socioeconomic scenarios, and other factors necessary for estimating water demand on the global scale. ② Relationship Between Extreme Rainfall and Temperature Rise What is causing the recent increase in disasters caused by heavy rain? Global warming can be considered one key factor. How have temperature rises and heavy rainfall patterns changed in Japan? And to what extent can precipitation, which is the output of climate models used to assess the future impact of climate change, accurately represent these changes? This study aims to clarify these issues. ③ Development of common socio-economic scenarios for climate change impact assessments in Japan Climate change is one of the biggest long-term challenges facing humanity. When predicting the impacts of climate change, scenarios based on assumptions about future conditions are commonly used. We are creating data (particularly on population, number of households, and land use in Japan) according with Japan's version of socioeconomic scenarios for the purpose of conducting nationwide unified the assessments of climate change and its applicability across multiple sectors in Japan. ④ Deforestation Dynamics and the Factors of Change in Amazon Since the 1970s, Brazil's legal Amazon region has been hit by dramatic deforestation. Deforestation can cause long-term increases in temperature and decreases in evaporation and precipitation. However, as the world's largest producer of beef and soybeans, many countries, including Japan, rely on agricultural products from the Amazon. Using satellite remote sensing and statistical data, we are conducting research aimed at clarifying where and what crops are influencing land use changes, which countries they are exported to, and the connection between land use changes and the global market. We are also seeking to clarify the extent to which policies implemented during each administration have influenced land use changes. In both large-scale and small-scale agricultural and pastoral areas in the Amazon, irrigation has been initiated to increase crop yields, and efforts have also begun to clarify the impact of land use changes and irrigation activities on the water cycle.		
2. Keywords Land use/ Land cover, water resource, Remote sensing, socio-economic scenario		
3. Remarks and Websites Current projects ① Environment Research and Conservation Activities Strategic Research and Development Areas (I) S-24 (FY2025-2029) ② JSPS KAKENHI Grant-in-Aid for Scientific Research (B) (FY2025-2028) ‘Global water resource assessment taking account soil salinity’ ③ JSPS KAKENHI Grant-in-Aid for Challenging Research (Pioneering) (FY2024-2028) ‘Does the global ESG trend pose a crisis to the future global food security? From the perspectives of Brazil and Japan’ researchmap : https://researchmap.jp/sayakayoshikawa Laboratory: https://www.cce.nagasaki-u.ac.jp/~kankyo/		

